

IMPORTANT PRODUCT INFORMATION

READ THIS INFORMATION FIRST

Product: IC693 CPU Firmware, Release 6.50, upgrade kit only:

IC693CPU311VU
IC693CPU313LU
IC693CPU323LU
IC693CPU331XU
IC693CPU340FU
IC693CPU341PU
IC693CPU351-DE

This is a feature release of the IC693 PLC firmware (available as an upgrade kit only). This release supports multiple SNP and backplane sessions, SNP and SNPX slave and Master Protocol on serial ports on the IC693CPU351, as well as increased performance for the PID function in the IC693CPU351. Additionally, all IC693 CPUs are brought up to release 6 functionality.

New Catalog Number	Replaces
IC693CPU311VU	IC693CPU311P, S, T, U
IC693CPU313LU	IC693CPU313E, F, G, H, J, K
IC693CPU323LU	IC693CPU323F, G, H, J, K
IC693CPU331XU	IC693CPU331P, S, T, U, V, W
IC693CPU340FU	IC693CPU340C, D, E
IC693CPU341PU	IC693CPU341K, L, M, N
IC693CPU351-DE	IC693CPU351-BC, CD, DD

Hardware and Software Identification

The hardware and software identification for this release is summarized in the following tables.

Catalog Number	Board Identification	Board Revision	UVEPROM Label	EPROM Location
IC693CPU311VU	BC3C2	R02 or later	395-039A6.50	U8
IC693CPU313LU	BC3C2	R02 or later	395-041A6.50	U8
IC693CPU323LU	BC3D2	R04 or later	395-042A6.50	U8
IC693CPU331XU	CP3A2	R02 or later	395-040A6.50	U19
IC693CPU340FU	CH3A2	R02 or later	528-006A6.50	U35
IC693CPU341PU	CH3A2	R02 or later	528-005A6.50	U35

Catalog Number	Board Identification	Board Revision	EEPROM Location
IC693CPU351-DE	CA3A1	R03 or later	U3
IC693CPU351-DE	CV3A1	R05 or later	U105 U106

Upgrade Information

Upgrade kits are available to upgrade existing units with 6.04 or earlier firmware to release 6.50 firmware. This upgrade is optional. Existing units may be upgraded for a charge by ordering the applicable field upgrade kit.

Upgrade Kit	For Upgrading	To
44A737599-G01	IC693CPU311U or earlier versions	IC693CPU311VU
44A737600-G01	IC693CPU313K or earlier versions	IC693CPU313IU
44A737608-G01	IC693CPU323K or earlier versions	IC693CPU323IU
44A737596-G01	IC693CPU331W or earlier versions	IC693CPU331XU
44A737601-G01	IC693CPU340E or earlier versions	IC693CPU340FU
44A737597-G01	IC693CPU341N or earlier versions	IC693CPU341PU
44A737598-G01	IC693CPU351-DD or earlier versions	IC693CPU351-DE

Packaging Note

The user manual is not shipped in the box with every product. User documentation is provided as a complete set in a library with IC641 Programming Software products, are available on CD ROM, or can be ordered as individual manuals.

Documentation

The following table lists the applicable documentation for each of the CPUs. Documentation is also available on CD ROM, catalog number IC690CDR002*. (* Current version will be shipped).

Catalog Number	User Manual
All CPU models	Programmable Controller Installation Manual (for IC693 Products)

GFK-1318

Operational Notes:

UVEPROM Change

1. The User Program, configuration, CPU ID (used for SNP communications), and status tables will automatically be cleared when the CPU UVEPROM is changed. You will need to restore these items if upgrading from a previous CPU version. The user program, configuration, and status tables can be restored from an IC641 programming software folder or from Memory card, EEPROM, or flash memory. The SNP ID must be set separately, using IC641 programming software or the Hand-Held Programmer.

Retentive Warning

2. The *USE WRN* message may be displayed inappropriately by the Hand-Held Programmer. To determine if a coil is being used multiple times, the program check function can be used to find multiple usages.

FIRMWAREUPGRADEPROCEDURE

3. The Model 351 CPU operating firmware is stored in flash memory. The firmware upgrade is provided on a floppy disk and must be serially downloaded from a Personal Computer. An AT or better PC with a minimum 640K of RAM, one 3.5" or high density 5.25" floppy drive, MS-DOS version 3.3 or later, a hard drive, and one RS-232 serial port is required. In addition, a serial cable is required. The following serial cable kit is available:
 - IC690ACC901 Miniconverter Kit with cable (RS-232 / RS-485)
Optionally, the cable can be assembled from the following parts:
 - IC690ACC900 RS-232 to RS-485 / 422 Converter Unit
 - IC693CBL303 15 Pin RS-485 Serial Cable
 - IC690CBL705 25 Pin RS-232 Serial Cable *
 - IC690CBL702 9 Pin RS-232 Serial Cable *

** Only one of these cables is required. Selection depends on PC Serial Port Connector.*

Ethernet Interface Module Compatibility

4. All IC693 Ethernet Interface (IC693CMM321) modules used with release 6.5 of the IC693 PLC should be updated to release 1.10 of the IC693CMM321. IC641 TCP/IP Ethernet software requires both CPU release 6.5 and IC693CMM321 release 1.10. Also, using release a 1.00 Ethernet module with a release 6.5 IC693 PLC will result in a *LAN system software fault; resuming PLC fault on power-up /restart of the ethernet module.*

New Features

Increased Performance for PID Function

The execution time of the PID function on the IC693CPU351 has been significantly reduced.

SNP/SNPX Master and Slave Protocols

The two serial ports on the IC693CPU351 support SNP and SNPX Master and Slave. Also, these two ports, as well as the Power Supply serial port can be active simultaneously.

Multiple Backplane and SNP Sessions

Multiple programmer and non-programmer connections are supported. Up to 17 serial connections are allowed per port. Up to 128 backplane connections are allowed per slot.

Problems Resolved by This Release

Storing a Maximum Size Program Block

1. If a main program block exactly 16,384 bytes long was running in the PLC, the PLC's watchdog timer could have tripped when the block was edited and resaved to the PLC using ALT-S.

PCM Message Traffic

2. When an excessive number of NO_WAIT communications request (COMM_REQ) messages were sent to a PCM in a short period of time, a fatal software fault may have occurred or the watchdog timer may have timed out. While the fault will no longer occur, COMM_REQ messages should still only be sent one at a time. See the *Programmable Coprocessor Module and Support Software User's Manual* (GFK-0255) for details.

Special Register 15

3. When the user program remaining in a CPU 331 was exactly zero (that is, when all 16K bytes had been used), the HHP may have displayed =0960 in Special Register 15 (%SR15). The IC641 display of the memory remaining was correct in this case.

Adding Smart Modules to an IC693 System

4. If a smart module was physically added to a PLC rack, and a configuration was then stored to the PLC in which the module was missing, and then a configuration was stored to the PLC in which the module was correctly configured, the module did not receive its configuration and was not scanned in run mode. If power was cycled after the correct configuration was stored, the module would be scanned properly.

Repetitive Fault Reporting

5. If a configuration was stored to a CPU 331 PLC that included smart modules in an expansion rack that was powered off, then powering up the expansion rack and going to run mode may have resulted in repetitive logging of loss and addition of module faults. Power-cycling both main and expansion racks at the same time fixes this problem.

Reconfiguring Smart I/O Modules

6. If power was removed from an expansion (expansion or remote) rack that contained a smart I/O module, a very long sweep may have occurred while the module was being reconfigured after power was reapplied. If the PLC was in constant sweep mode, an oversweep fault may have occurred.

Multiple Channel Connections

7. If multiple programmer devices were connected to the PLC through a single module (for example, the Ethernet Communications module), the privilege level, active datagrams, and fault table change indications may not have been maintained properly for all devices. Specifically, if one device cancelled all normal datagrams, the datagrams for all devices connected through that module were cancelled. Also, if the privilege level was changed by one device, the level associated with all devices connected through that module would be changed accordingly. Only one programming device should be connected through a single module.

Update Utility Error Messages

8. Specific error messages, such as *keyswitch in protect position*, and so forth, were not reported by the firmware update utility. A general *update failed* message was reported for all errors.

GFK-1318

Configuring Smart Modules with the HHP

9. If a configured module was being deleted from the configuration and another (or the same) module added in the same slot, then it may have been necessary to press <DEL> <ENTER> twice, then press <READ> <ENTER> twice in order to add the new module.

Verifying RAM with Flash

10. When verifying registers in the PLC's RAM with the registers saved in flash memory, a verification error may have occurred if the program in flash had subroutines and the program in RAM does not match it.

HHP Display with Heavy Mail Traffic

11. With several PCM, ADC, or CMM modules in a system which were producing as much mail as the PLC could handle, the HHP may have displayed unexpected messages. Disconnecting and reconnecting the HHP corrected the display.

Power Loss During Write to Flash

12. If power was lost during an attempt to save user data to flash memory with the HHP, an extra power cycle may have been required for the PLC and an extraneous fault may have been generated.

Rack Type Mismatch

13. When a configuration created with a Release 1 version of IC641 software that contained a non-empty expansion rack was stored to a PLC in which that rack was missing, a fatal *CONFIGURATION MISMATCH* fault was generated. The PLC could be put into RUN mode after the fault tables were cleared. Or, if the correct rack type was selected using the RCKSEL function of Release 2 or later IC641 programming software, the alarm would not be generated when the configuration was stored to the PLC.

PLC Software Fault

14. A problem where a PLC Software Fault, error code 07, was erroneously logged, has been corrected.

PLC_SHARE_DATA

15. The PLC_SHARE_DATA service request is now fully functional on a model 351 PLC.

User Program Corruption

16. Storing a program on a CPU 351 with a subroutine beginning within 80 bytes of the 64K boundary could result in a user program corruption.

Restrictions and Open Problems

RANGEDWORD Function Block

1. The range dword function block described in the *Programmable Controllers Reference Manual* is not implemented in either IC641 programming software or the PLC. Two comparison function blocks can be used instead.

SFC Reset

2. SFC Steps exited through an SFC_RST are not executed without power-flow to turn applicable coils off.

WRITE Datagram

3. A write datagram through the backplane or serial communications ports in the CPU 351 supports 1 text buffer only, so a maximum of 62 points may be included in a single backplane datagram. Multiple datagrams may be used for a greater number of points.

CPU 351 MOVE Function Block

4. On the CPU 351, the MOVE function block does not support overlapping IN and Q parameters. To perform an overlapping move, use the ARRAY_MOVE function block, with the index parameters set to 0 (zero), and the N field set to the length value. See the applicable *Programmable Controllers Reference Manual* for a detailed description of the ARRAY_MOVE function block.

CPU 351 BITSEQ Function Block

5. On the CPU 351, if the ST parameter is omitted in a BITSEQ function block, then the function block will be inactive.